

March 19, 2007

The Honorable John Dingell, Chairman
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

The Honorable Rick Boucher, Chairman
Subcommittee on Energy and Air Quality
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

Dear Chairman Dingell and Chairman Boucher:

The Nature Conservancy appreciates the opportunity to respond to your letter of February 27, 2007 requesting answers to questions about climate change policy. We appreciate the open and thoughtful way in which you are conducting the process of constructing climate legislation.

The Nature Conservancy is an international, nonprofit organization dedicated to the conservation of biological diversity. Our mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. Our on-the-ground conservation work is carried out in all 50 states and in more than 30 foreign countries and is supported by approximately one million individual members. We have helped conserve nearly 15 million acres of land in the United States and Canada and more than 102 million acres with local partner organizations globally.

The Conservancy owns and manages approximately 1,400 preserves throughout the United States—the largest private system of nature sanctuaries in the world. We recognize, however, that our mission cannot be achieved by core protected areas alone. Therefore, our projects increasingly seek to accommodate compatible human uses, and especially in the developing world, to address sustained human well-being.

The Conservancy is also a member of U.S. Climate Action Network but is submitting its views separately in this letter.

Climate change poses one of the single greatest threats to ecosystem health and human well-being. Shifting seasons, distorted lifecycles of plants and animals, more intense and frequent storms, droughts and fires, melting glaciers and rising sea levels—these are the devastating effects of global warming. These changes are not only affecting plants and animals, but also all of us who depend on the Earth's natural resources for our well-being and our way of life. And,

the longer we wait, the steeper and more costly it becomes to prevent the dangerous consequences of global climate change.

It is therefore imperative that Congress move swiftly to adopt an effective climate policy that will protect nature and human well-being on this Earth. We would like to call your attention to three issues that The Nature Conservancy believes are of paramount importance in the design of climate change:

- **Strong cost-effective cap and well-designed program to protect ecosystems and human well-being.** The core function of a climate change policy should be to set in motion and sustain a course of long-term reductions in greenhouse gas emissions that will be sufficient to stabilize the climate at a level that will protect human society and the natural world. A program should be designed to be cost-effective and to send appropriate long-term price signals to stimulate needed investment in emissions-reducing technologies. A mandatory cap on greenhouse gas emissions with opportunities for trading should be at the core of any policy approach to address this issue.
- **Reduction of emissions from forest and land use through the incorporation of a robust and credible offset program.** The Nature Conservancy strongly supports the inclusion of robust offset provisions in a GHG cap and trade program that will allow real, additional, verifiable, permanent and enforceable offsets from domestic and international activities to be used by regulated entities for compliance with their allowance obligations. Offsets offer real cost-effective emission reductions and lower the cost of emission reduction programs. Offsets from land conservation and restoration projects can provide additional benefits by supporting forest protection and protection of other natural areas. International offsets from this sector are particularly important because land use and deforestation represents a third of developing country emissions and efforts to reduce these emissions contribute greatly to poverty reduction and biodiversity conservation. Proven methods for reliably measuring, monitoring and verifying land-based carbon offsets already exist and are in widespread use.
- **Assurance that the program helps the natural world and those who depend on healthy ecosystems adapt to the impacts of climate change.** Climate change is already creating challenges to vulnerable species and habitats in the U.S. and around the world. The Conservancy advocates dedicating at least 25% of auction revenues to a Climate Change Adaptation Fund that would assist the natural world adapt to the impacts of climate change in the U.S. and abroad, and help reduce the impacts of climate change on the most vulnerable members of society.

We discuss these views and other issues in our responses to your individual questions in the attached response. Please direct any questions about our comments to Eric Haxthausen at (703) 841-7439.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nigel Purvis'.

Nigel Purvis

Vice President and Managing Director of External Affairs and Policy

cc: The Honorable Joe Barton, Ranking Member
Committee on Energy and Commerce

The Honorable J. Dennis Hastert, Ranking Member
Subcommittee on Energy and Air Quality

The Honorable Barbara Boxer
Senate Committee on Environment and Public Works

The Honorable Jeff Bingaman, Chairman
Senate Committee on Energy and Natural Resources

The Honorable James M. Inhofe, Ranking Member
Senate Committee on Environment and Public Works

The Honorable Pete V. Domenici, Ranking Member
Senate Committee on Energy and Natural Resources

March 19, 2007

**Response of The Nature Conservancy to February 27, 2007 Questions on Climate Policy
from Chairman Dingell and Chairman Boucher**

1. Please outline which issues should be addressed in the Committee's legislation, how you think they should be resolved, and your recommended timetable for Congressional consideration and enactment. For any policy recommendations, please address the impacts you believe the relevant policy would have on:

- (a) emissions of greenhouse gases and the rate and consequences of climate change;
and*
- (b) the effects on the US economy, consumer prices, and jobs.*

The Nature Conservancy strongly supports the adoption of a cost-effective mandatory cap and trade program to limit greenhouse gas emissions in the U.S. Significant reductions in emissions will be needed to mitigate the impacts of climate change. As a leading emitter the U.S. should lead with domestic reductions, which will also provide a platform for a more effective international climate protection regime.

A well-designed program should not harm the economy or hurt the competitive status of U.S. industry. Such a program would unleash and set in motion available low-cost opportunities to reduce U.S. emissions. Many steps, for example stimulating improvements in energy efficiency, could be taken immediately that would likely benefit the U.S. economy.

A comprehensive domestic program to address climate change must address three paramount issues:

- **Strong cost-effective cap and well-designed program to protect ecosystems and human well-being.** The core function of a climate change policy should be to set in motion and sustain a course of long-term reductions in greenhouse gas emissions that will be sufficient to stabilize the climate at a level that will protect human society and the natural world. A program should be designed to be cost-effective and to send appropriate long-term price signals to stimulate needed investment in emissions-reducing technologies. The level of a domestic cap should be sufficient to represent an appropriate U.S. contribution to global emissions reductions, given the urgent need to stabilize the atmosphere at a CO₂-equivalent concentration that will protect ecosystems and human well-being.

There is a growing consensus on the importance of maintaining global average surface temperature at 2 degrees Celsius above pre-industrial levels (approximately 2 degrees Fahrenheit above current levels). The European Union has adopted the position that global warming must be limited to no more than 2°C above the pre-industrial

temperature to prevent dangerous levels of climate change. Based on the work of the Intergovernmental Panel on Climate Change, the European Commission has concluded that significant impacts on ecosystems and water resources are likely even with a temperature increase of 1-2°C above pre-industrial levels, but that once global warming exceeds 2°C, climate impacts on food production, water supply and ecosystems are projected to increase significantly and irreversible catastrophic events may occur.

To have a 50% chance of holding temperature increases to 2°C above pre-industrial levels, the EU has concluded that global emissions will need to be reduced by up to 50% of 1990 levels by 2050. Such reductions will require even greater contributions from advanced economies with relatively stable populations such as the United States and most European countries. Even if global temperature can be held to this increase, there is a high risk of significant adverse implications for biodiversity.

The Nature Conservancy has not taken a position on the appropriate level for a U.S. cap or concentration target. We are studying this issue and intend to take a more detailed position in the near future on these issues.

- **Reduction of emissions from forest and land use through the incorporation of a robust and credible offset program.** The Nature Conservancy strongly supports the inclusion of robust offset provisions in a GHG cap and trade program that will allow real, additional, verifiable, permanent and enforceable offsets from domestic and international activities to be used by regulated entities for compliance with their allowance obligations. Offsets offer real cost-effective emission reductions and lower the cost of emission reduction programs. Offsets from land conservation and restoration projects can provide additional benefits by supporting forest protection and protection of other natural areas. International offsets from this sector are particularly important because land use and deforestation represents a third of developing country emissions and efforts to reduce these emissions contribute greatly to poverty reduction and biodiversity conservation. Proven methods for reliably measuring, monitoring and verifying land-based carbon offsets already exist and are in widespread use.
- **Assurance that the program helps the natural world and those who depend on healthy ecosystems adapt to the impacts of climate change.** Climate change is already creating challenges to vulnerable species and habitats in the U.S. and around the world. The Conservancy advocates dedicating at least 25% of auction revenues to a Climate Change Adaptation Fund that would assist the natural world in adapting to the impacts of climate change in the U.S. and abroad, and help reduce the impacts of climate change on the most vulnerable members of society.

In addition, the Committee's legislation will need to address several other important design issues, including the following:

- *The basic architecture of the program:* The program should establish a comprehensive cap-and-trade program that regulates GHG emissions from all major sectors of the economy. Although this paper focuses on the design of a cap and trade program, the Conservancy recognizes that other policy strategies with respect to energy efficiency, renewable fuels, and tax policy may play a significant role in a complete program to mitigate climate change.

- *Which gases to cover:* The program should cover the major anthropogenic greenhouse gases: CO₂, methane, nitrous oxides (N₂O), HFCs, PFCs, and SF₆.
- *The point of regulation:* There are many issues to be considered in establishing the point of regulation. This issue is at the core of the architecture of a cap and trade program and should be approached thoughtfully.
- *The allocation methodology, basic parameters of any allowance auction, and disposition of any revenues from allowance auctions:* We advocate the use of an auction to allocate allowances to the greatest extent feasible. The auction may be phased in over time to assure the allowance market of a stable transition. This would provide for some allowances to be allocated to regulated sources during the initial years of the program. Ultimately, a full auction will be desirable. The basic parameters of the auction and principles for allocation should be specified in legislation; implementation of further details may be delegated to the appropriate regulatory agency. See our response to questions 2d and 2k.
- *Delegation of program administration:* Some details of program administration will need to be delegated to one or more regulatory agencies. The legislation should spell out the scope of that delegation.
- *Design of market mechanisms and other flexibility mechanisms:* The legislation should establish the basic parameters of the market mechanisms that will operate under the cap and trade program. For example, the legislation should clearly specify that banking and trading of allowances should be allowed, and should establish a robust offset program that rewards activities to reduce greenhouse gases in the agricultural and forestry sectors, and other sectors as appropriate. The task of determining the details of these mechanisms may be delegated to an appropriate regulatory agency.
- *Supplementary policies such as fuel economy, energy efficiency, green building standards, funding for research and development into advanced technologies, and consumer incentives to facilitate GHG reductions:* Supplementary policies including standards and incentives will be needed to ensure that cost-effective opportunities to reduce emissions are not passed up because of market failures or other obstacles. Although a cap on greenhouse gases, supplemented with standards and incentives, will stimulate private sector investment in advanced technologies, government support for research and development will help to accelerate these efforts, particularly where projects transcend the interests and resources of individual companies.
- *Linkages with other national or international programs.* Any cap and trade program should be designed to leave open the possibility of linkages with carbon trading programs in other countries, particularly those in Canada and the European Union. Linking a U.S. carbon trading program to a foreign scheme will likely improve market liquidity and lower overall emissions reduction costs for a minimal increase in administrative burden. The Nature Conservancy believes that, because of the United States' large historic responsibility for the climate change problem, our nation must act now to abate greenhouse gas emissions through a mandatory domestic carbon trading program without precondition concerning other nations.

2a. What sectors should it cover? Should some sectors be phased in over time?

The Conservancy believes that reducing greenhouse gases in the U.S. will require efforts in all sectors. An approach that caps the emissions from all major sources and sectors would more

equitably share the responsibility of reducing emissions across major sources than a more limited program. The more comprehensive nature of such an approach would also create more opportunities to find the lowest cost options to meet the emission reduction goal than a sector-specific approach. Setting a single cap that covers major sources in every sector would facilitate trading of emissions between the entities in the various sectors.

Emissions from land-use and agricultural practices would be covered by the program indirectly through offset provisions. They would be included in the program immediately but could phase in to the program in the sense that individual entities in these sectors could choose for themselves whether to market offsets.

2b. To what degree should details be set in statute or delegated to another entity?

Congress should establish the basic program architecture and provide basic direction for the allocation or auction of allowances in statute. Administrative details, such as the detailed rules for offsets, may be delegated to one or more regulatory agencies.

2.c. Should the program's requirements be imposed upstream or downstream or some combination thereof?

There are many issues to be considered in establishing the point of regulation. This issue is at the core of the architecture of a cap and trade program and should be approached thoughtfully. The Conservancy has in the past indicated its support for an upstream system. However, we believe there are a variety of approaches that could be undertaken that may have merit and should be considered carefully.

It is worth noting that the Conservancy believes that a cap and trade program should not be viewed as the only mechanism for achieving reduction of United States greenhouse gas reductions. The architecture of the cap and trade program should seek to capture as much U.S. emissions as possible in a single program, and to provide fungibility of emissions so that allowances can be readily traded between sectors. Although this paper focuses on the design of a cap and trade program, the Conservancy recognizes that other policy strategies with respect to energy efficiency, renewable fuels, and tax policy are likely to play a significant role in a complete program to mitigate climate change.

2.d. How should allowances be allocated? By whom? What percentage of the allowances, if any, should be auctioned? Should non-emitting sources, such as nuclear plants, be given allowances?

Allowances under a national cap are a public trust: they are a permit to use the atmosphere, which belongs to all of us. Allowances will be worth billions of dollars each year, and their value will increase over time as the pollution cap declines. Consequently, the allocation method chosen is important.

Allowances should be auctioned or otherwise distributed to achieve maximum public benefits. The Nature Conservancy supports a program that will transition to a full auction of allowances as

quickly as feasible and economically desirable, considering an interest in maintaining market stability and gaining experience with the auction mechanism. At the outset, there may be an interest in distributing some allowances to industry to facilitate a smooth transition to the new climate policy regime or to compensate affected industry for reductions in asset values driven by the policy change. Ultimately, however, allowances should be auctioned and the revenues dedicated to public purposes in recognition of allowances' role as part of the public trust.

A critical task is to protect nature. The Conservancy believes that at least 25 percent of the auction revenues should be used to support actions that will help plants, animals, ecosystems and the most vulnerable Americans adapt to the impacts of climate change. See our response to 2.k. for further detail on our recommendations for the use of these funds.

Recent analysis and experience

Work by economists at Resources for the Future has shown that in the U.S. a small fraction of the allowances would be sufficient to compensate industry for losses in asset values, and that awarding industry most or all of the available allowances would result in windfall profits. Research presented in the context of the Northeastern states' Regional Greenhouse Gas Initiative (RGGI) showed that if allowances under that (more limited) program were given away for free to generators, the electricity sector participants would profit by over \$1 billion a year.¹

In the RGGI region in particular, there has been growing support for auctioning a large majority of the allowances for reasons of equity and the ability to use the revenue to invest in program, initiatives and efforts that further catalyze and produce greenhouse gas emission reductions. In a deregulated electricity market, prices are based not on the average cost of producing power, but on the marginal cost of the most expensive source of generation dispatched at any given time. Thus, the price of power should be unaffected by whether generators are required to pay for their allowances or are given them for free. The understanding that auctioning of allowances would not affect the price of power led the final RGGI Model Rule to require each state to auction at least 25% of their allowances; several states, including Vermont, New York, and Connecticut, have already stated their intention of auctioning 100% of their allowances.

The experience of the European Union is also instructive. Analysis of the response of member country power sectors to the European Union's Emission Trading Scheme (EU ETS), a mandatory cap and trade program covering GHG emissions from major stationary emitters, indicates that power companies have been able to pass along the costs of the allowances to consumers and most entities have profited greatly from the overallocation of allowances to regulated industry.²

¹ Burtraw, Dallas & Karen Palmer, RFF, 2005. Presentation to RGGI Stakeholder Meeting, Allocation of CO2 Emission Allowances in RGGI.

² IPA Energy Consulting, 2005. *Implications of the EU Emissions Trading Scheme for the UK Power Generation Sector*. Report to the U.K. Department of Trade and Industry. Downloadable at <http://www.ipaenergy.co.uk/downloads&publications/FINAL%20Report%201867%2011-11-05.pdf>. J. P.M. Sijm, S.J.A. Bakker, Y. Chen, H.W. Harmsen and W. Lise, 2005. *CO2 price dynamics: The implications of EU emissions trading for the price of electricity*. ECN report ECN-C--05-081, Petten, The Netherlands. Downloadable at www.ecn.nl/

2e. How should the cap be set (e.g., tons of greenhouse gases emitted, CO₂ intensity)?

The Conservancy recommends that the cap be based on absolute emissions rather than emissions intensity or some metric other than absolute emissions. The purpose of enacting a cap on greenhouse gases is to prevent the adverse effects that are likely to occur if greenhouse gases in the atmosphere reach a certain level. An intensity-based standard provides little certainty as to actual emissions, and may tend to create more uncertainty about the future allowable level of emissions. An intensity-based cap would also require emissions to be lower when projected economic growth is lower; this could have the effect of creating more binding constraints on certain industries at times when the economy is growing more slowly and in periods of recession.

The cap should ideally be set in terms of tons of greenhouse gases emitted in CO₂-equivalent units (or some equivalent metric), in order to allow trading of emissions of CO₂ and other greenhouse gases and to facilitate linkage with systems in other countries.

2f. Where should the cap be set for different years?

The question of where to set the cap is one of the most critical design issues in the program. The Nature Conservancy views this issue as one of the most critical for biodiversity. There is a growing consensus on the importance of maintaining global average surface temperature at 2 degrees Celsius above pre-industrial levels (approximately 2 degrees Fahrenheit above current levels). The European Union has adopted the position that global warming must be limited to no more than 2°C above the pre-industrial temperature to prevent dangerous levels of climate change. Based on the work of the Intergovernmental Panel on Climate Change, the European Commission has concluded that significant impacts on ecosystems and water resources are likely even with a temperature increase of 1-2°C above pre-industrial levels, but that once global warming exceeds 2°C, climate impacts on food production, water supply and ecosystems are projected to increase significantly and irreversible catastrophic events may occur.

To have a 50% chance of holding temperature increases to 2°C above pre-industrial levels, the EU has concluded that global emissions will need to be reduced by up to 50% of 1990 levels by 2050. Such reductions will require even greater contributions from advanced economies with relatively stable populations such as the United States and most European countries. Even if global temperature can be held to this increase, there is a high risk of significant adverse implications for biodiversity.

The Nature Conservancy has not taken a position on the appropriate level for a U.S. cap or concentration target. We are studying this issue and intend to take a more detailed position in the near future on these issues.

2g. Which greenhouse gases should be covered?

The widest possible range of greenhouse gases should be included in the program (e.g., CO₂, methane, nitrous oxides (N₂O), HFCs, PFCs, and SF₆) since other GHGs can often be reduced at a lower cost than CO₂ emissions from fossil fuels.

2.h. Should early reductions be credited? If so, what criteria should be used to determine what is an early reduction?

The Conservancy believes it is desirable for covered sources to be credited for early reduction activities once legislation has passed that defines program rules and timelines for compliance. Thus once a cap and reduction milestones are determined, prior to the launch of the program, it would be beneficial to allow regulated sources to have emission reductions credited and allowed to be used toward compliance with their cap. Doing so will serve to incent activities to reduce emissions in advance of the cap. In crediting early reductions, it is important to assure that the early reductions are covered within the program's overall cap and that the stringency of the cap is maintained. Thus early reduction credits would need to be covered by a fund of allowances set aside as part of the initial allocation.

2i. Should the program employ a safety valve? If so, at what level?

In general, concerns about minimizing program cost are best addressed through the basic architecture of the trading market established under the program. For example, banking has been used with great success to minimize costs in the SO₂ trading program established under the Clean Air Act Amendments of 1990. Other program features that create flexibility and reduce market power will serve to reduce allowance prices under normal conditions, and will also provide a buffer against market volatility.

The Nature Conservancy would prefer that a "safety valve" not be included in a GHG cap and trade program. If it is adopted, such a provision should be deployed as insurance against extreme or unexpected events rather than a cap on allowance prices under normal conditions, and should be constructed to meet the following conditions:

- It should avoid interfering with normal market volatility and price discovery;
- It should avoid creating disincentives to investment in advanced technologies that will be needed to meet the intended atmospheric stabilization target;
- It should avoid limiting the allowance price to a level below the likely marginal damage cost of greenhouse gas emissions.

2.j. Should offsets be allowed? If so, what types of offsets? What criteria should govern the types of offsets that would be allowed?

The Nature Conservancy strongly supports the inclusion of robust offset provisions within a GHG cap and trade program. The Conservancy believes it is essential for the program to have offset provisions that will allow real, additional, verifiable, permanent and enforceable offsets to be used by regulated entities for compliance with their allowance obligations.

Strong action will be needed to reduce GHG emissions to levels that will allow the climate to stay within a band that protects ecosystems and human well-being. Achieving such significant reductions will require both deployment of a wide range of currently available tools as well as development of advanced technologies. A robust offset program need not and should not delay investments in these advanced technologies.

The Conservancy supports the inclusion of offsets in a federal greenhouse gas emission reduction program for the following reasons:

1. Offsets offer real emission reductions and provide a ready mechanism for encouraging reduction of GHG emissions and sequestration in land use activities.
2. Offsets both increase the flexibility and lower the cost of emission reduction programs. By expanding the allowance market to include low cost emission reductions from sources outside of the cap, offsets would allow covered entities to take on tighter emissions limits without increasing compliance costs and, thus, increase the overall environmental benefit of the program.
3. Offsets help to protect the market against price volatility and, thus, lessen the need for price control instruments such as a safety valve.
4. Offsets from international sources encourage developing countries to reduce emissions and can help to protect the biodiversity value of tropical forests and other native ecosystems.

Research into the potential and costs of forest based carbon sequestration in the U.S. by Stavins and Richards for the Pew Center on Global Climate Change³ found that projected costs for various forest restoration and management activities ranged from roughly \$7.50 to \$22.50 per ton of CO₂. In even the most advantageous circumstances, the present cost of sequestering carbon via reforestation ranges around \$15-20 per metric ton of carbon dioxide equivalent.⁴ Recent work done by Sohngen and Beach found a carbon cost ranging from \$1.36/t CO₂ to \$27.25/t CO₂ for global avoided deforestation work.⁵ Given that these costs are comparable to those of other available emissions reductions, it is unlikely that the forest carbon offsets will flood the market. The prices also indicate that they are a potential cost-effective mitigation strategy.

The Conservancy supports including offsets from land conservation and restoration projects in a federal greenhouse gas cap and trade program.

The scientific findings on observed and anticipated climate change strongly suggest that all major sources of greenhouse gas emissions, including emissions from deforestation and land-use, will need to be addressed to minimize climate change impacts to people, plants and animals. Deforestation and other land use changes account for 20-25% of global greenhouse gas emissions,⁶ an amount greater than the total fossil fuel emissions in the United States. Without substantial emission reductions from deforestation and other land-uses, climate change can not be adequately addressed.

³ Stavins, Robert N. & Kenneth R. Richards. 2005. *The Cost of U.S. Forest-based Carbon Sequestration*. Prepared for the Pew Center on Global Climate Change.

⁴ TNC data, also U.S. EPA, 2005. *Greenhouse Gas Mitigation Potential in U.S. Forestry and Agriculture*.

⁵ Sohngen, Brent & Robert Beach, 2006. *Avoided Deforestation as a Greenhouse Gas Mitigation Tool: Economic Issues for Consideration*.

⁶ Watson, et al (Eds.) (2000) – Intergovernmental Panel on Climate Change (IPCC): *Special Report on Land Use, Land Use Change and Forestry* – Cambridge, U.K.

Forests, grasslands and other natural systems store carbon in their leaves, wood, roots and soil. As plants grow, they remove carbon dioxide from the atmosphere. But when they are destroyed, that carbon is released back into the atmosphere, contributing to the accumulation of emissions.

Carbon storage rates in forests and other landscapes in the United States are declining. Without additional economic incentives, such as carbon offset payments to land owners, carbon storage rates in these landscapes are expected to continue to decline.⁷ Carbon project financing from a federal offsets programs would create important incentives to increase carbon storage and reduce emissions from terrestrial sources.

The Conservancy strongly recommends that offsets from improved forest and cropland management, reforestation, and forest and grassland conservation be included in a federal program to limit greenhouse gas emissions. In addition to offering real emission reduction or carbon sequestration benefits, these activities contribute to biodiversity and watershed protection. Beyond the benefits of offsets trading mentioned above, allowing land conservation offsets in a federal emissions trading program would also help to win program support from farmers, foresters and the conservation community.

Proven methods for reliably measuring, monitoring and verifying land-based offsets already exist and are in widespread use. Methods for measuring and monitoring terrestrial carbon pools, based on commonly accepted principles of forest inventory, are well established and tested. For decades, landholders and government agencies have been accurately measuring and monitoring forest status and growth using a combination of techniques including direct field measurements, satellite and aerial photography and computer modeling. Many protocols for measuring and monitoring carbon project benefits already exist, including those established by the Intergovernmental Panel on Climate Change, the Department of Energy 1605(b) program, and the California Climate Action Registry.

In addition, well-developed third-party verification approaches are being used for ensuring the veracity of offsets credits. To further enhance credibility, if there are scientific uncertainties regarding offset measurements, discount rates can be set according to the measured percentage of uncertainty.

Carbon storage data for the nation's various forest types are readily available. Drawing from periodically collected Forest Inventory and Analysis data, the United States Forest Service has developed estimates for average carbon storage per acre, growth rates, and potential maximum carbon storage in spruce-fir, white pine, maple-beech birch, oak hickory and other major forest types.

Based on our on-the-ground experience, the Conservancy believes that the technical challenges in implementing sound offsets projects are manageable and that a well-designed offsets program would achieve real emission reductions and permanent (or insured) sequestration.

⁷ According to the Environmental Protection Agency's Inventory of U.S. GHG Emissions and Sinks, U.S. forests sequestered 18% less carbon in 2000 than they did in 1990.

Maximizing project benefits for people and wildlife

The Conservancy supports offsets projects that mitigate climate change, and both avoid damage to and enhance natural resources that support the wellbeing of people and wildlife, including soil fertility, water resources, and native ecosystems that provide habitat for plants and animals. To maximize offset project benefits to people and wildlife, the Conservancy recommends that offsets rules include require that projects “do not destroy or negatively impact native ecosystems, or introduce invasive or non-native species.”

Ensuring the permanence of offsets

To protect against the potential loss of carbon storage or greenhouse gas emission reduction benefits tied to any credits generated by the project, the Conservancy recommends that offsets rules include the following provision.

“Projects must account for the potential loss of the net greenhouse gas emission reductions or sequestration achieved by the project by adopting one of the following options.

(i) Establish a permanent easement that would require that the project area be maintained in perpetuity to preserve the net greenhouse gas emission reductions and sequestration benefits. In addition, the offsets claimed by the project must be discounted by 10% to account for the unlikely case that the emission reduction or sequestration benefits are lost because of fire, extreme weather, or other unexpected events.

(ii) Establish a liability contract that would require either the buyer or seller of the offsets to replace any greenhouse gas emission reduction or sequestration offsets that are lost over the project lifetime. In addition, the offsets buyer must by the end of the project lifetime either:

a) replace all of the offsets used for compliance purposes with permanent offsets generated by projects from other sectors, or agricultural and forest offsets from other projects, or

b) establish a conservation easement on the property that would require that the project area be maintained in perpetuity to preserve the net greenhouse gas emission reduction or sequestration benefits.

Establishing baselines to measure offset project emission reduction or carbon sequestration benefits

Baselines to measure emission reductions and carbon sequestration from offsets projects can be established using existing credible and cost-effective methods. For example, a credible baseline for grassland and forest restoration projects and conservation tillage projects can be established using the base year approach. This means the baseline would be measured by evaluating land use and measuring carbon stocks in the year immediately preceding the start of project. Credible baselines for forest and grassland conservation projects could be developed using regional or county averages of deforestation rates or grassland destruction rates. These rates could either be developed by the organization administering the offsets program, or by another qualified public entity.

Preventing the potential leakage of offset project benefits

Leakage, or potential shifts of activity from the project area to somewhere outside of the project boundary, can be addressed by requiring project developers to: 1) design the project to avoid leakage, if possible; 2) estimate potential leakage if it can't be mitigated and apply a leakage discount factor to the measured carbon benefits; and 3) monitor for leakage over the project lifetime and subtract any detected leakage from the carbon benefits claimed. Third party verifiers should be required to certify the accuracy of this information.

Examples of Successful Land Conservation and Restoration Offsets Projects

Noel Kempff Mercado National Park, Bolivia. The Nature Conservancy's Noel Kempff Climate Action Project (NKCAP) in Bolivia is an example of a large-scale forest conservation project where the emission reductions, baseline and leakage assessment has been validated and verified by a third party. In November 2005, an internationally accredited certifier, Société Générale de Surveillance (SGS), verified the emissions reductions from the NKCAP achieved from 1997 to 2005 using rigorous certification standards. The Noel Kempff project provides an excellent working example of how carbon sequestered in living forest biomass and emission reductions achieved through forest conservation can be scientifically quantified, monitored and certified. The Noel Kempff Mercado National Park is one of the most biologically diverse areas in the world. When over 2 million acres adjacent to the park was threatened with timber harvesting and deforestation, the Conservancy stepped in. This project is expected to reduce up to 17.8 million tons of carbon dioxide in the atmosphere over 30 years. By facilitating a unique partnership between the Bolivian government, Fundacion Amigos de la Naturaleza and three energy companies, we helped to terminate the logging rights, and the land was incorporated into the national park. To ensure the long-term conservation of the forest its resources – and the continuation of these climate benefits – the Conservancy and local partners have established a park endowment fund and are developing sustainable economies that rely on a healthy forest. We are also monitoring changes in the park's tropical forests and savannas to plan for the continued protection of the park.

Louisiana Bayou Pierre Floodplain, U.S. In northwest Louisiana, the Conservancy is working to bring a critical area of floodplain forest back to health after extensive clearing for agriculture. With the support of a consortium of power companies, 500 acres of farmland will be planted with bottomland hardwood seedlings such as nuttall oak and sweet gum and protected over the long term, linking two existing natural refuges in the Bayou Pierre Floodplain. Because the trees will absorb carbon dioxide as they mature, this reforestation project also provides important carbon sequestration benefits in addition to protecting wildlife. Surrounding communities will benefit from additional natural areas for recreation and improved flood control.

2k. If an auction or a safety valve is used, what should be done with the revenue from those features?

An auction would have the benefit of raising significant revenue for climate-related public purposes, and the Conservancy supports auctioning allowances for that reason.

The Conservancy believes strongly that a significant fraction—at least 25%—of the revenues from an auction should be dedicated to a climate change adaptation fund that will include funding to

assist domestic and international wildlife and ecosystems in adapting to a changing climate regime.

Climate Change Adaptation Fund

As the climate begins to change, the need for efforts to support climate change adaptation is already great. The Nature Conservancy recommends that at least 25% of auction revenues be transferred into a Climate Change Adaptation Fund to support activities that will help plants, animals, ecosystems and the most vulnerable Americans adapt to the impacts of climate change.

The impacts of climate change are already being observed and are likely to be enormous in their implications for the natural world. In 2002, the National Academy of Sciences concluded that, “recent scientific evidence shows that major and widespread climate changes have occurred with startling speed....The new paradigm of an abruptly changing climate system has been well established by research over the last decade, but this new thinking is little known and scarcely appreciated by the wider community of natural and social scientists and policy makers.”⁸

As temperatures continue to rise, scientists predict increased ice melt, rising sea levels, increased intensity of storms and other extreme weather events. Scientists also anticipate that certain habitats and places may no longer have the right climate for the plants and animals that live there now. Global climate change has already caused the geographic ranges of some plant and animal species to shift northward and upward in elevation, while ranges for others have shrunk considerably.

Changes to the natural world around us have serious implications for plant and animal life, but also for people. People depend on nature in myriad ways. Fisheries, timber harvests, grazing, and protected areas are all managed based on ecological processes that are being fundamentally altered as a result of climate change. If we are not proactive and do not anticipate the changing world, many sectors of our society will suffer severely.

We must fund activities aimed at developing and implementing successful adaptation strategies to protect our investments in natural assets and nature reserves in response to climate impacts that are already detectable in natural systems and in many plant and animal populations. Also particularly vulnerable are people who depend most significantly on the natural world.

In the face of this threat, there is a need for federal attention to programs to address this. Within the Climate Change Adaptation Fund, the Conservancy recommends that at least 10% of the auction revenues be dedicated to state and federal efforts to protect natural systems in the U.S. and help them adapt to climate change. The Conservancy recommends that the remaining revenues in the Climate Change Adaptation Fund be dedicated to protecting ecosystems in other countries and helping vulnerable Americans adapt to climate change. We discuss our recommendations in more detail below.

Adaptation assistance for U.S. fish and wildlife and ecosystems

⁸ National Research Council (2002). *Abrupt Climate Change: Inevitable Surprises*. National Academy Press, Washington, D.C.

The Conservancy supports a policy approach that would set aside at least **10 percent** of the allowance pool revenues to fund actions within the U.S. to facilitate adaptation of fish and wildlife species and habitat to climate change. Thirty percent of these funds should be allocated to the Department of the Interior to fund federal programs.

Given that approximately 30% of lands in the U.S. are under federal ownership and management, investing in federal adaptation programs is a high-leverage approach to minimizing climate change damages to natural resources. Climate change is already affecting the ability of federal natural resource management agencies to protect the investments that American taxpayers have already made in protecting land and water resources. For example, agencies that manage our federal forestlands are already faced with the challenges of protecting against higher risks of forest fire, pest outbreaks (e.g., the pine beetle infestation threatening forests in the northern U.S. and Canada), and loss of tree species linked to climate change. Providing these agencies with resources to adapt to climate change in the near term will reduce the risk of catastrophic impacts to important land and water resources. In addition, acting now to minimize the impacts of climate change would be far more cost-effective than working to recover these resources after the damages had already occurred. To protect wildlife and natural resources in the U.S., the Conservancy believes that a significant fraction of the adaptation funding should be dispersed to federal agencies that manage land and water resources, for example the Bureau of Land Management, the Forest Service, the Fish and Wildlife Service, the U.S. Geological Survey, the Army Corps of Engineers, Wildlife Refuges, and others for the following general purposes:

- to protect natural communities that are most vulnerable to climate change;
- to restore and protect natural resources that directly guard against damages from climate change events; and
- to restore and protect ecosystem services that are most vulnerable to climate change.

This could include:

- 1) Federal programs and projects to identify Federal land and water at greatest risk of being damaged or depleted by climate change; to monitor Federal land and water to allow for early detection of impacts; to develop adaptation strategies to minimize the damage; and to restore and protect Federal land and water at the greatest risk of being damaged or depleted by climate change;
- 2) Federal programs and projects to identify climate change risks and develop adaptation strategies for natural grassland, wetlands, migratory corridors, and other habitats vulnerable to climate change on private land enrolled in the Wetlands Reserve Program, the Grassland Reserve Program, or the Wildlife Habitat Incentive Program;
- 3) Programs and projects under the North American Wetlands Conservation Act and the Neotropical Migratory Bird Conservation Act to protect habitat for migratory birds that are vulnerable to climate change impacts;
- 4) Programs and projects to identify coastal and marine resources (such as coastal wetlands, coral reefs, submerged aquatic vegetation, shellfish beds, and other coastal or marine ecosystems) at the greatest risk of being damaged by climate change; to monitor those resources to allow for early detection of impacts; to develop adaptation strategies; to protect and restore those resources; and to integrate climate change adaptation

requirements into State plans developed under the coastal zone management program established under the Coastal Zone Management Act of 1972, the National Estuary Program, the Coastal and Estuarine Land Conservation Program, or other comparable State programs;

- 5) Programs and projects to conserve habitat for endangered species and species of conservation concern that are vulnerable to the impact of climate change;
- 6) Federal Land and Water Conservation Fund projects
- 7) Programs and projects under the Forest Legacy Program to support State efforts to protect environmentally sensitive forest land through conservation easements to provide refuges for wildlife;
- 8) Other Federal or State programs and projects identified as high priorities for the general purposes listed above
- 9) Efforts to address climate change in Federal land use planning and plan implementation and to integrate climate change adaptation strategies into comprehensive conservation plans prepared under section 4(e) of the National Wildlife Refuge System Administration Act of 1966; General Management Plans for units of the National Park System; Resource Management Plans of the Bureau of Land Management; and Land and Resource Management Plans under the Forest and Rangeland Renewable Resources Planning Act of 1974 and the National Forest Management Act of 1976; and
- 10) Projects to promote sharing of information on climate change wildlife impacts and mitigation strategies across agencies, including funding efforts to strengthen and restore habitat that improves the ability of fish and wildlife to adapt successfully to climate change through the Wildlife Conservation and Restoration Account established by section 3(a)(2) of the Pittman-Robertson Wildlife Restoration Act.

The remainder of the 10 percent of allowance pool revenues set aside for domestic fish and wildlife and habitat adaptation would go to state programs administered under the Pittman-Robertson State Wildlife Grant program. This money would be used in accordance with state comprehensive wildlife conservation strategies to undertake the following activities:

- develop relevant information, conduct research, and undertake monitoring to improve the ability of fish and wildlife to adapt and respond to the impacts of climate change;
- develop and conduct projects to address observed or anticipated effects of climate change on fish and wildlife species and populations;
- implement actions to manage, conserve, and restore fish and wildlife habitat to improve the ability of fish and wildlife to adapt and respond to the impacts of climate change.

Given that approximately 9% of lands in the U.S. are owned and managed by state governments, investing in state adaptation programs is also a relatively high-leverage approach to addressing climate change impacts to natural resources.

Adaptation assistance for ecosystems abroad

The Conservancy also supports the funding from allowance revenues of international conservation activities to protect globally significant species and habitats from the effects of climate change. We are working with other international conservation organizations to develop common recommendations for you about how an international adaptation program could be

structured. We look forward to sharing these recommendations with you as soon as possible. Such international funding should be incremental to the 10% of allowance revenue that we recommend be dedicated to assist domestic wildlife and habitats with adaptation to an altered climate.

Adaptation for affected populations

The Conservancy also recommends that a portion of revenues in the Climate Change Adaptation Fund be dedicated to assist vulnerable human populations in responding to the impacts of climate change.

Other uses of revenues

Beyond funding to facilitate adaptation of fish and wildlife, the remaining funds in the Climate Change Adaptation Fund could be used:

- To assist low-income consumers as part of the strategy to address climate change. For example, this could include additional funding to the Low Income Home Energy Assistance Program and other efforts to reduce energy costs for these vulnerable Americans.
- To assist displaced workers with transitional assistance, including assistance with transition to new employment where jobs are displaced as a consequence of a restructuring of the economy toward lower greenhouse gas emissions.

The Conservancy believes that a federal program regulating greenhouse gas emissions would not lead to significant increases in energy prices, and that any impact would be small relative to the fluctuations in energy prices that consumers currently experience.

Given the minimal impact that a federal emission reduction program would have on energy costs, the Conservancy does not believe that a set-aside program to assist all other energy consumers is warranted. Moreover, such a program would be at cross-purposes with the ancillary goal of reducing energy consumption as a means of reducing greenhouse gas emissions.

In addition to funding activities to facilitate adaptation to climate change, some portion of the revenues from allowance auctions should be invested in a Clean Energy Fund to support research on and development and deployment of emissions reductions technologies. Revenues from an auction could also be used to offset payroll or other taxes as a further means of offsetting any distributional effects of increased energy prices.

2.1. Are there special features that should be added to encourage technological development?

A number of policies such as stronger fuel economy and energy efficiency standards, green building standards, funding for research and development into advanced technologies, and consumer and manufacturer incentives to encourage GHG reductions could help to facilitate advances in technology.

In general, the Conservancy believes that progress on the development and deployment of low and no carbon technologies will succeed best under the umbrella of a mandatory cap and trade program. The cap level is important for setting a price for greenhouse gas emissions. It is critical that an appropriate price signal be set and that the price signal will accelerate the

deployment of low cost solutions for reducing greenhouse gas emissions. Without the appropriate price signal, long-term planning, investments, financing and research and development will not be carried out.

In addition to the economy-wide cap and trade program, complementary policies should be deployed to accelerate the development and deployment of low and no carbon innovative technologies.

The Conservancy is interested in the question of how best to provide incentives for technological development and deployment that would lead to greenhouse gas reductions, and hopes to provide additional recommendations on this issue in the near future.

3. How well do you believe existing authorities permitting or compelling voluntary or mandatory actions are functioning? What lessons do you think can be learned from existing voluntary or mandatory programs?

Voluntary Programs

In general, voluntary markets have served an important function to demonstrate the function of carbon markets and establish some rules for proving that carbon credits are additional, permanent, measurable, and verifiable. There are some good models for measuring and monitoring land use carbon credits to draw from in creating rules under a mandatory federal cap and trade program. As noted above, protocols for measuring and monitoring carbon project benefits that already exist include those established by the IPCC, the Department of Energy 1605(b) program, and the California Climate Action Registry.

Yet, voluntary programs will only go so far in producing emission reductions. Until there is a mandatory cap on carbon, there has been and will be only limited participation in these programs. These projects require upfront investments and capital to carry out and without a mandatory cap driving emission reductions it is unlikely that a return on investment can be realized. Only a select group of entities including companies and non profits have participated, driven by an interest in understanding the mechanics of creating carbon offsets, hedging that carbon offsets created now may have greater value in the future and gaining a positive public relations benefit for having carried out efforts to reduce carbon emissions.

Mandatory Programs

Under the Kyoto Protocol, the EU Emissions Trading Scheme (EU ETS) emerged as a mandatory cap and trade program to enable the EU and its 25 member states to meet their emission reduction targets. It covers around 12,000 installations in 25 countries and 6 major industrial sectors. Phase I of the Scheme began on 1 January 2005 and will run until 31 December 2007. Phase II will run from 2008-2012 to coincide with the first Kyoto Protocol commitment period. The EU-ETS is comparable in scope to the proposed Lieberman-McCain Climate Stewardship Act, although administratively more multifaceted.

Certainly there are lessons to be learned from the EU ETS. One of the most critical issues or potential shortfalls of this program seems to be the over allocation of allowances to sources.

Overall, this will mean the program will achieve less emission reductions than expected. This lesson speaks to the need to develop accurate baselines of emissions generated from various sectors. Current and verifiable data must be used to accurately measure current greenhouse gas emission levels from sectors proposed to be regulated.

In addition, the lack of transparency of transactions has also created volatility in the market. This has resulted in periods of great price fluctuation in the market and uncertainty for regulated sources. This evidence speaks to the need to develop a system that allows for disclosure and tracking of allowance credit trading and price disclosures to enable planning and minimization of price risks.

Finally, as mentioned in our response regarding allocation of allowances, evidence from the EU ETS has emerged that free allocation of allowances has resulted in windfall profits for some regulated sources.⁹ Given this evidence, The Conservancy supports the principle that a federal program should auction most if not all of the allowances.

4. How should potential mandatory domestic requirements be integrated with future obligations the United States may assume under the 1992 United Nations Framework Convention on Climate Change? In particular, how should any U.S. domestic regime be timed relative to any international obligations? Should adoption of mandatory domestic requirements be conditioned upon assumption of specific responsibilities by developing nations?

Mandatory domestic requirements adopted in U.S. legislation are essential to guide a U.S. negotiating position in future talks under the auspices of the U.N. Framework Convention on Climate Change and in other negotiations. The primary focus of the U.S. now should be on adopting appropriate domestic mandatory policies to achieve domestic emissions reductions as quickly and cost-effectively as possible. Passage of domestic legislation would improve the prospects of the U.S. negotiating appropriate climate treaties or cooperative arrangements with other nations. The U.S. can then seek to join agreements under the UNFCCC or other treaties, with the U.S. domestic legislation forming a platform for U.S. engagement.

The question of how best to engage China, India, and other major developing country emitters is critical. As a leading economic force that is responsible for approximately 30 percent of the world's anthropogenic greenhouse gas emissions to date, it is the responsibility of the United States to provide leadership in the international effort to reduce greenhouse gas emissions. Securing the commitment of major emitting developing countries will be impossible until the United States does so.

While the U.S. should not condition its adoption of mandatory domestic requirements on specific actions by developing nations, it should pursue a foreign policy that encourages other nations to do their share in ways that are appropriate to their national circumstances. The U.S. has a

⁹ J.P.M. Sijm, et al. 2005. Ibid.

variety of tools at its disposal to ensure that U.S. action now does not harm the competitiveness of U.S. industry.

By enacting domestic legislation and using foreign policy and other tools, the U.S. can continue to exert American leadership in the global arena while protecting its domestic industry against unfair trade practices.

At the same time, the U.S. should actively pursue linkages with other countries that do have mandatory measures in place, such as the European Union's Emission Trading Scheme. Such linkages should extend to crediting international offsets that are real, verifiable, additional, permanent, and enforceable in the context of the domestic trading program. As deforestation is the largest source of emissions for many developing countries and constitutes one-third of developing country emissions, this should include credit for national programs that protect tropical forests from deforestation or degradation. The U.S. should also negotiate bilateral clean energy investment agreements with major emitters and trade partners to encourage the flow of advanced emissions-reducing technologies from the U.S. to other countries.

By undertaking these steps and re-exerting its global leadership, the U.S. can reassert its role as a global technology leader in addressing the pre-eminent environmental challenge of the 21st century.